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TWO NEW SPECIES OF ERIOPHYOID MITES (ACARI, ERIOPHYOIDEA) ON *CHIMONANTHUS PRAECOX* (LINN.) LINK. FROM CHINA

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Abstract Two new species, *Leipothrix chimonae* sp. nov. and *Diptacus praecox* sp. nov., infesting *Chimonanthus praecox* (Linn.) Link. (Calycanthaceae), are described and illustrated. The type specimens are deposited in the Museum of Hebei University, Baoding City, Hebei Province, China.

Key words Eriophyoid mites, taxonomy, *Chimonanthus praecox*, Shaanxi Province, China.

The genus *Leipothrix* (Eriophyidae, Phyllocoptine, Phyllocoptini) was proposed by Keifer in 1966, with the type species *L. solidanginis* Keifer, 1966. Up to now, 11 species were found worldwide, of which 7 were reported in China (Hong *et* Kuang, 1989; Huang *et al.*, 1989; Kuang, 1991; Li, Wei *et* Wang, 2006; Wei, Wang *et* Li, 2009; Wei *et* Xie, 2009; Zhu, Wei *et* Li, 2009).

The genus *Diptacus* (Diptilomiopidae, Diptilomiopinae) was erected by Keifer in 1951 (type species *Diptilomiopus sacramentae* Keifer, 1939). So far, 62 species were found worldwide, of which 41 speices were reported in China (Chen *et al.*, 2003, 2004; Huang, 2001; Huang *et al.*, 1989; Huang *et* Wang, 2009; Kuang, 1995, 2001; Kuang *et* Feng, 1987; Kuang *et* Hong, 1990; Kuang *et* Huang, 1991; Li, Wei *et* Qin, 2009; Liu *et* Kuang, 1998; Song, Xue *et* Hong, 2007; Wang *et* Wei, 2009; Wang, Wei *et* Yang, 2009; Wang, Xue *et* Hong, 2009; Wei, Wang *et* Li, 2009; Xin *et* Dong, 1983; Xue *et* Hong, 2005; Xue, Song *et* Hong, 2006).

Chimonanthus praecox (Linn.) Link. (Calycanthaceae), as a fragrant wintersweet tree, is wild and cultivated in the Qinling-Dabashan Region, Southern Shaanxi Province, China. In 2009, the first author collected eriophyoid mites specimens from *C. praecox* at Langao County, Shaanxi Province. 44 mites mounted on glass slides were examined under Olympus BX51 microscope at laboratory, of which 28 mites were identified as *Leipothrix chimonae* sp. nov. and the other 16 mites as *Diptacus praecox* sp. nov.

In this paper, these two new species are described and illustrated. All measurements are in micrometers (μm) and are lengths when not specified, and the range of the paratypes (in brackets) follows the measurements of the holotype. On the other, the numbers of scale bars in figures have been rounded up. Type specimens are deposited in the Museum of Hebei University, Baoding City, Hebei Province, China.

***Leipothrix chimonae* sp. nov.** (Figs 1 - 5)

Female. Body fusiform, 175 (145 - 210) long, 65 (65 - 75) wide, 38 (38 - 47) thick, clour in light yellow. Gnathosoma 20 (20 - 25) long, projecting nearly straight downward; setae d 13 long, bifurcate at about 1/4 from base. Prodorsal shield triangle, 60 (58 - 60) long, 65 (54 - 65) wide, with frontal lobe. Shield design with median line and admedian lines incomplete, and submedian lines off and on, besieged by some irregular short lines at shield margin. Scapular tubercles set ahead of rear shield margin, 17 (15 - 17) apart; scapular setae 3 (3 - 5) long, directing setae centrad. Coxae with sternal line present; coxae Ⅰ and Ⅱ sculptured with short lines; coxal setae 1*b* 5 (5 - 8), 13 (12 - 15) apart; coxal setae 1*a* 15 (12 - 18), 6 (5 - 7) apart; coxal setae 2*a* 20 (18 - 25), 25 (22 - 26) apart. Legs with standard segments and all setae except femoral setae; Leg Ⅰ 32 (27 - 32), femur 10 (9 - 10); genu 5 (4 - 5), genual setae (*l''*) 28 (25 - 30); tibia 8 (6 - 8), tibial setae (*l'*) 2 (1 - 3), located at lateral 1/3 from base; tarsus 6 (5 - 6); tarsal solenidion 5 (5 - 6), knobbed; tarsal empodium entired, 3-rayed. Leg Ⅱ 31 (26 - 31), femur 10 (9 - 10); genu 4 (3 - 5), genual setae (*l''*) 5 (5 - 6); tibia 8 (6 - 8); tarsus 6 (5 - 6); tarsal solenidion 5 (4 - 5), knobbed; tarsal empodium entired, 3-rayed. Opisthosoma with 43 dorsal annuli, of which 27 - 30 dorsal annuli forming a clear median

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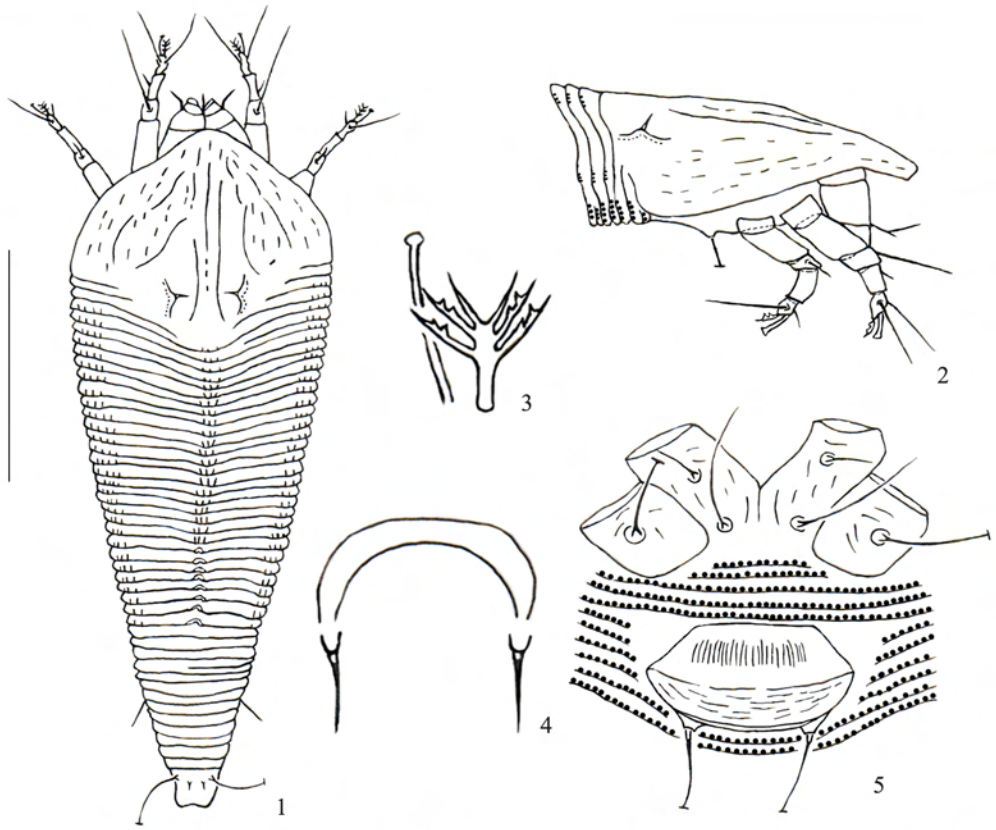


Figs 1 – 5. *Leipothrix chimonae* sp. nov. 1. Dorsal view of female. 2. Antero-lateral view of female. 3. Empodium enlarged. 4. Male genitalia. 5. Coxal-genitalia of female. Scale bars: 1 = 59 μm, 2 = 61 μm, 4 = 24 μm, 5 = 32 μm.

longitudinal ridge, and two weak longitudinal lateral ridges, ornament with elongated (or round) microtubercles on ridges; ventral annuli 60 – 63, with round microtubercles except caudal 6 ventral annuli with elongated microtubercles. Setae *c* 2 10 (6 – 10), 47 (45 – 62) apart, on 13 – 14th ventral annulus; setae *d* 15 (15 – 20), 22 (22 – 36) apart, on 26 – 27th ventral annulus; setae *e* 12 (8 – 12), 12 (10 – 15) apart, on 45 – 46th ventral annulus; setae *f* 20 (15 – 25), 20 (20 – 22) apart, on 6th ventral annulus from rear. Setae *h*1 2 (2 – 3), setae *h*2 50 (40 – 50). Female genital coverflap 15 (15 – 16) long, 20 (20 – 21) wide, sculptured by some longitudinal lines basally and some streaks distally, setae 3*a* 15 (15 – 17), 12 (12 – 13) apart.

Male. 120 – 130 long, 45 – 50 wide; genitalia 15 – 16 wide, setae 3*a* 8 – 10, 12 – 13 apart.

Holotype female, Lazhu Village (32° 25′ N, 108°53′E), Langao County, Shaanxi Province, China, alt. 600 m, 1 June 2009, from *Chimonanthus praecox* (Linn.) Link. (Calycanthaceae), collected by XIE Man-Chao. Paratypes, 25 females and 2 males, same data as holotype.

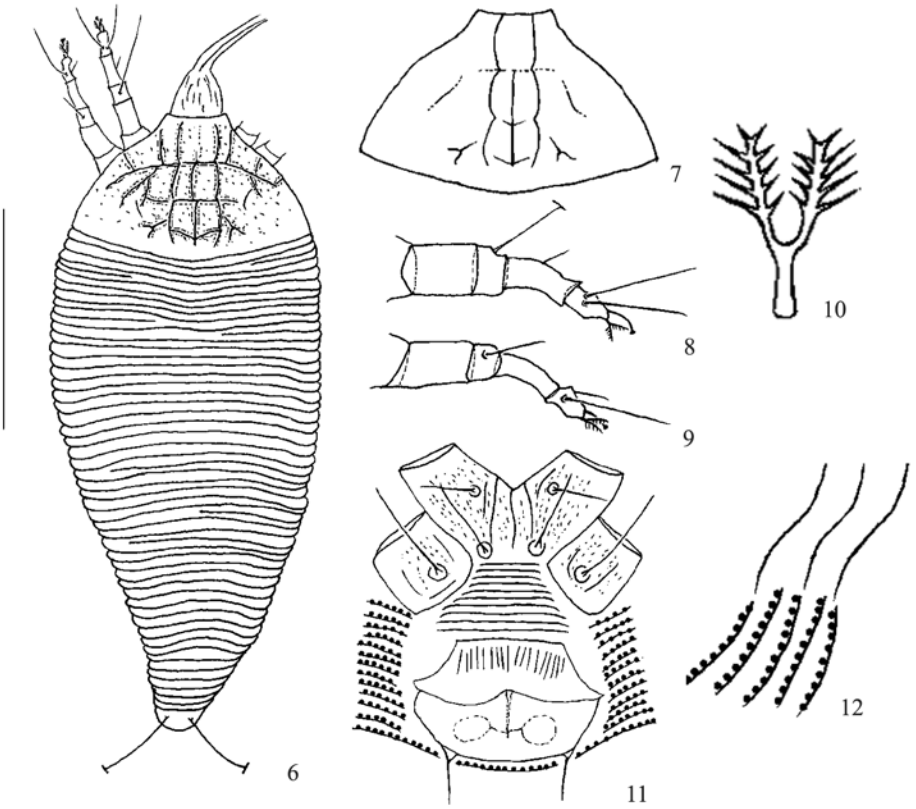
The mites are vagrant on the undersurfaces of leaves. No obvious damage to the host was seen.

Etymology. The specific name is derived from the generic name of the type host plant.

Remarks. This new species is similar to *L. yipingae* Shi, 2000, but can be separated by the shield design with median line, and female coverflap sculptured by some longitudinal lines basally and some streaks distally, and tarsal empodium 3-rayed; in *L. yipingae*, the shield design without median line, female coverflap sculptured by basal short steaks and microtubercles, tarsal empodium 4-rayed.

***Diptacus praecox* sp. nov.** (Figs 6 – 12)

Female. Body fusiform, 185 (185 – 210) long, 80 (78 – 95) wide, 75 (75 – 83) thick, colour in white. Gnathosoma 45 (40 – 45) long, projecting straight downward. Frontal lobe present. Prodorsal shield near triangle, 48 (40 – 50) long, 63 (60 – 75) wide, covered with wax network design. Shield with incomplete median line, about 1/3 median line missing at ahead of shield; admedian lines complete; submedian lines short and weak. Scapular tubercles near rear shield margin, 25 (22 – 25) apart; scapular setae 5 (3 – 5) long, dircted forward and centrad. Coxae with sternal line; coxae Ⅰ and Ⅱ sculptured with lines and grains; coxal setae 1*b* 10 (8 – 12), 15 (13 – 15) apart; coxal setae 1*a* 15 (12 – 15), 10 (10 – 11) apart; coxal setae 2*a* 20 (20 – 23), 27 (26 – 32) apart. Legs with standard segments and all setae



Figs 6 – 12. *Diptacus praecox* sp. nov. 6. Dorsal view of female. 7. Prodorsal shield view of female (working off wax). 8. Leg Ⅰ. 9. Leg Ⅱ. 10. Empodium enlarged. 11. Coxal-genitalia of female. 12. Lateral view of dorsal annuli and ventral annuli. Scale bars: 6 – 7 = 68 μm, 8 – 9 = 37 μm, 11 = 44 μm.

except femoral setae. Leg Ⅰ 43 (41 – 47), femur 13 (13 – 14); genu 5 (5 – 6), genual setae (*l''*) 40 (38 – 40); tibia 13 (11 – 14), tibial setae (*l'*) 5 (4 – 6), located at lateral 1/2; tarsus 7 (7 – 8); tarsal solenidion 5 (4 – 6), knobbed; tarsal empodium bifurcated, 5-rayed. Leg Ⅱ 41 (39 – 44), femur 13 (12 – 13); genu 5 (5 – 6), genual setae (*l''*) 12 (8 – 15); tibia 11 (10 – 12); tarsus 7 (7 – 8); tarsal solenidion 5 (4 – 6), knobbed; tarsal empodium bifurcated, 5-rayed. Opisthosoma with dorsal annuli 53 – 54, covered usually with strip-shaped wax, forming a wide furrow and a short median ridge (about 7 – 10 annuli); ventral annuli 94 – 95, with rounded microtubercles except caudal 8 – 9 ventral annli with elongated microtubercles; setae *c*2 11 (10 – 17), 65 (65 – 78) apart, on 17 – 18th ventral annulus; setae *d* 50 (40 – 50), 48 (44 – 65) apart, on 38 – 40th ventral annulus; setae *e* 12 (10 – 12), 27 (24 – 37) apart, on 60 – 61st ventral annulus; setae *f* 23 (20 – 28), 27 (22 – 28) apart, on 8 – 9th ventral annulus from rear. Setae *h*1 absent, setae *h*2 70 (50 – 70). Female genital coverflap 25 (23 – 26) long, 35 (34 – 36) wide, with a row of longitudinal ridges; setae 3*a* 8 (5 – 8), 21 (20 – 23) apart.

Male. Body 163 – 210 long, 70 – 85 wide. Male genitalia 25 – 26 wide, setae 3*a* 6 – 10, 21 – 22 apart.

Holotype female, Lazhou Village (32° 25′ N, 108°53′E; alt. 600 m), Langao County, Shaanxi Province, 1 June 2009, from *Chimonanthus praecox* (Linn.) Link (Calycanthaceae), collected by XIE Man-Chao. Paratypes: 8 femlaes, 7 males, same data as holotype.

Relation to host. The mites are vagrant on the undersurfaces of leaves. No obvious damage to the host was seen.

Etymology. The specific name is derived from the species name of the type host plant.

Rmarks. The new species is similar to *D. maddenis* Song, Xue *et* Hong, 2007, but can be differentiated by the: coxae Ⅰ with sternal line, coxal area sculptured with lines and grains, female coverflap with a row of longitudinal ridges.

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中国蜡梅上的瘿螨二新种（蜱螨亚纲，瘿螨总科）

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摘 要 记述寄生在蜡梅 *Chimonanthus praecox* (Linn.) Link. (蜡梅科 Calycanthaceae) 叶子上的瘿螨 2 新种：蜡梅离子瘿螨 *Leipothrix chimonae* sp. nov. 和蜡梅双羽爪瘿螨 *Diptacus praecox* sp. nov.。模式标本保存在河北大学博物馆。

蜡梅离子瘿螨，新种 *Leipothrix chimonae* sp. nov.（图 1 ~ 5）

正模♀，副模：25♀♀，2♂♂，2009-06-01，陕西省岚皋县蜡烛村，海拔 600 m，谢满超采。寄主为蜡梅 *Chimonanthus praecox* (Linn.) Link. (蜡梅科 Calycanthaceae)。

新种与悬钩子离子瘿螨 *Leipothrix yipingae* Shi, 2000 相似，但新种背盾板具背中线，雌生殖盖片基部具纵线，端部饰有斜线，羽状爪 3 支，而悬钩子离子瘿螨 *L. yipingae* 背盾板上无背中线，雌生殖盖片饰有短线和粒点，羽状爪 4 支。

蜡梅双羽爪瘿螨，新种 *Diptacus praecox* sp. nov.（图 6 ~ 12）

正模♀，副模：8♀♀，7♂♂，2009-06-01，陕西省岚皋县蜡烛村，海拔 600 m，谢满超采。寄主为蜡梅 *Chimonanthus praecox* (Linn.) Link. (蜡梅科 Calycanthaceae)。

新种与臭樱双羽爪瘿螨 *Diptacus maddenis* Song, Xue *et* Hong, 2007 相似，但新种足Ⅰ基节间具胸线，基节饰有线条和粒点，雌生殖器盖片上饰有 1 排纵肋，而臭樱双羽爪瘿螨 *D. maddenis* 足Ⅰ基节间无胸线，基节饰有粒点，雌生殖器盖片基部饰有粒点。

关键词 瘿螨，分类，蜡梅，中国.
中图分类号 Q959.226